FLIR Camera

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FLIR OVERVIEW

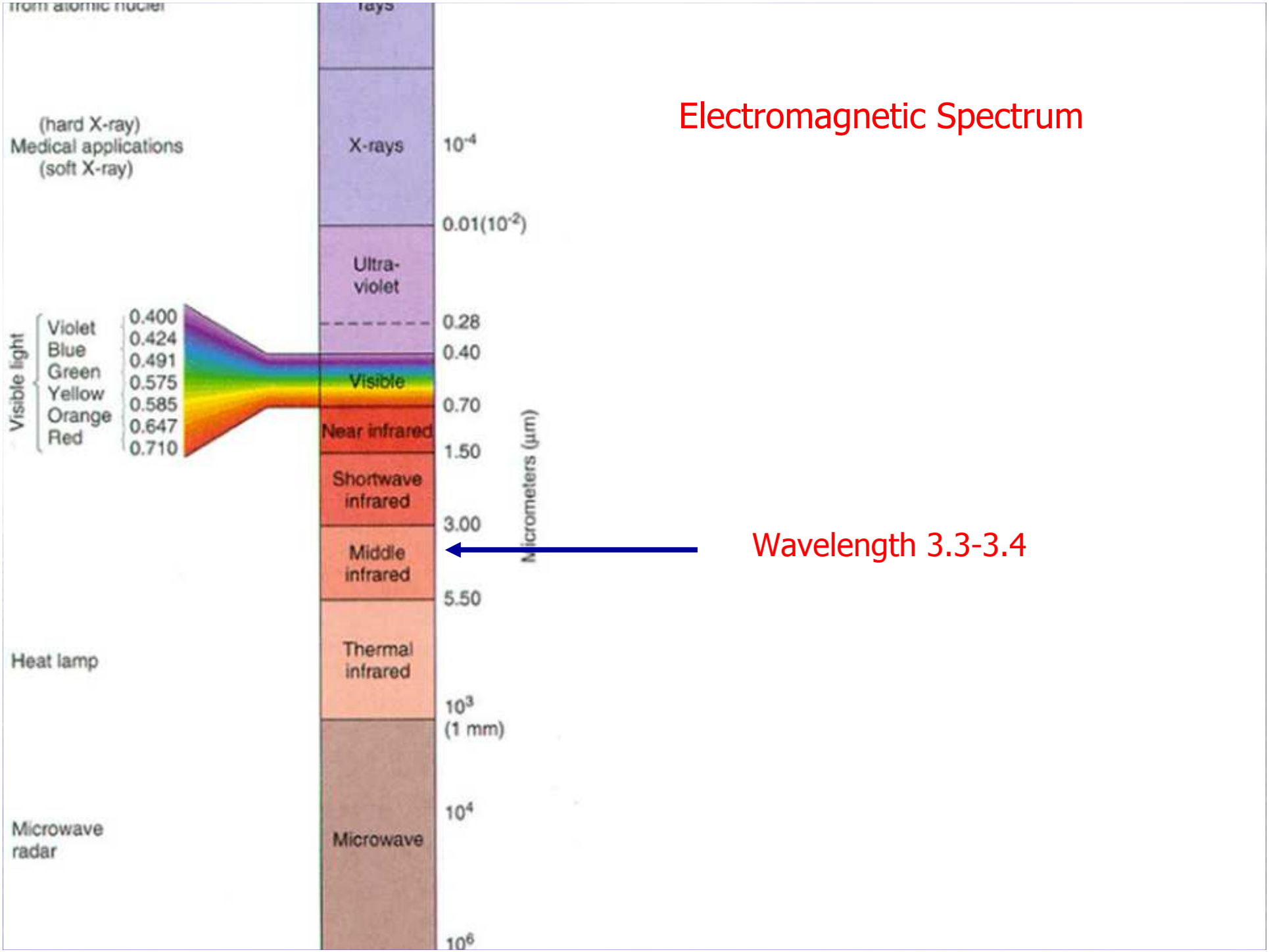
- Forward Looking Infrared Camera
- The Department currently has the ThermaCam GasFindIR model.
- Without getting into the science on how the camera operates, the camera basically shows the different temperatures of objects depending on their ability to transfer, reflect and maintain heat.
- Camera polarity allow for either white hot or black hot images.

Color pallets

- The GasFinderIR camera is equipped with two different color pallets
- Rainbow a full color spectrum where red is the hottest.
- Iron Bow where white is the hottest.

FLIR Overview

- The GasFindIR camera transmits Infrared energy in a narrow wave band near 3.3-3.4 micrometers.
- The GasFindIR camera has the capability to detect gases that have absorption band or bands at the same wavelength span the camera sees.


Electromagnetic Spectrum
(hard X-ray)
Medical applications
(soft X-ray)
X-rays
10^{-4}
0.01(10^{-2})
Ultra-violet
0.28
0.40
Visible
0.70
Near infrared
1.50
Shortwave infrared
3.00
Middle infrared
5.50
Thermal infrared
10^{3}
(1 mm)
10^{4}
Microwave
10^{6}
Visible light
Violet 0.400
Blue 0.424
Green 0.491
Yellow 0.575
Orange 0.585
Red 0.647
0.710
Micrometers (μm)
Wavelength 3.3-3.4
Heat lamp
Microwave radar

FLIR Overview

- The GasFindIR camera can only detect chemicals with the same wavelengths

GasFindIR gas detection webpage

Website http//webbook.nist.gov/chemistry

- The FLIR camera can detect:

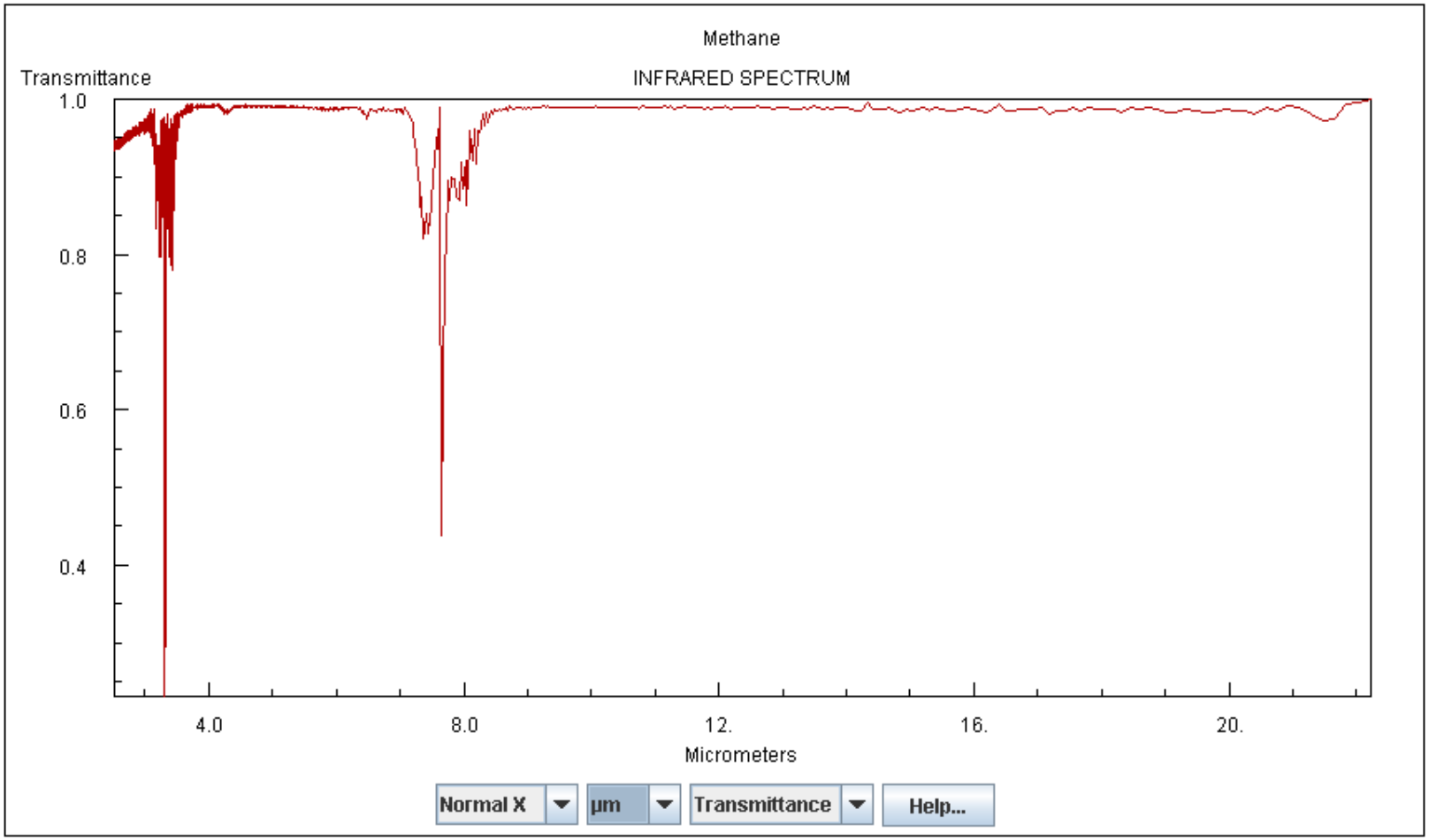
Propane

Methane

Ethane

Data compiled by: NIST Mass Spec Data Center, S.E. Stein, director

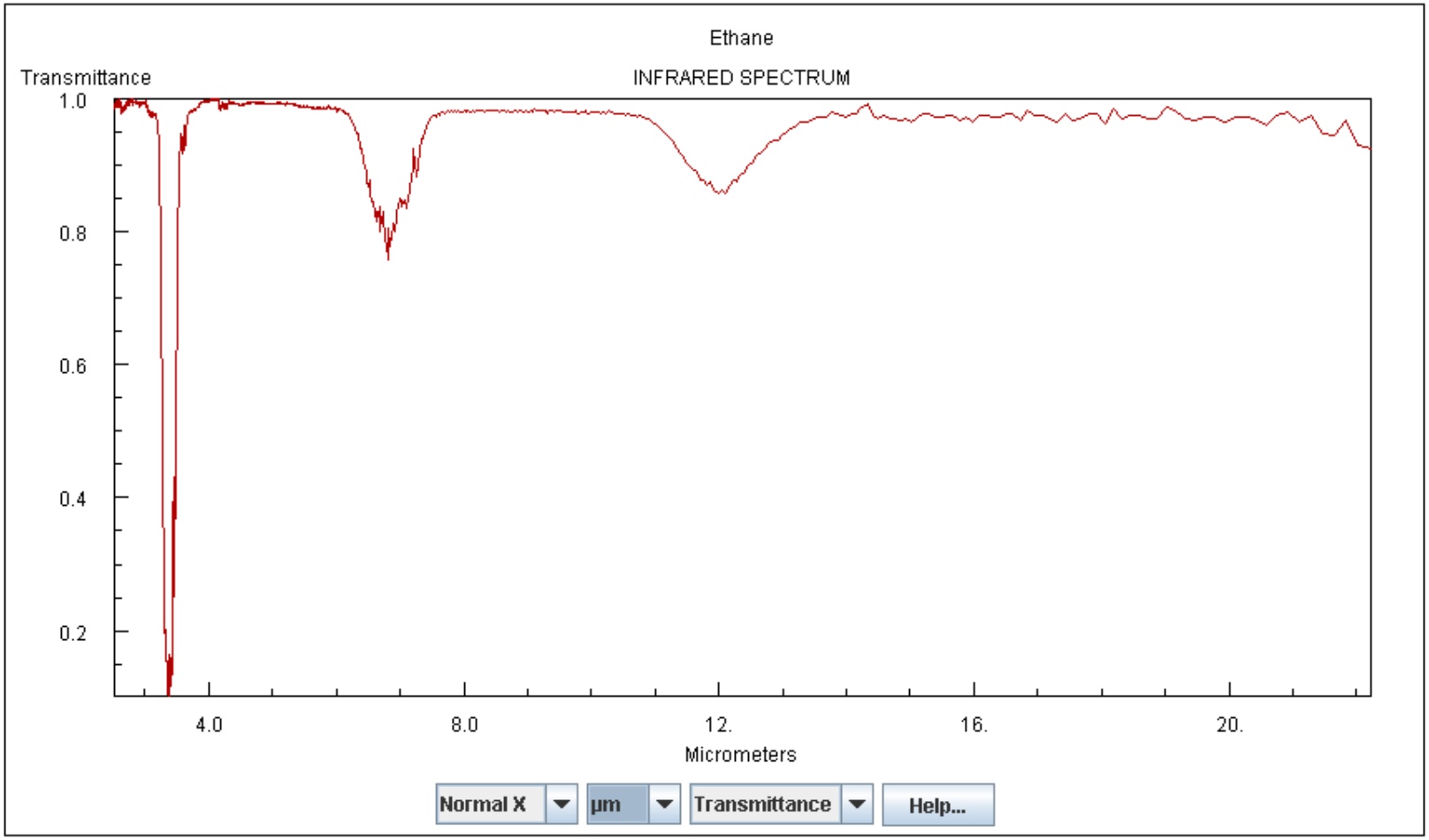
Gas Phase Spectrum



Notice: Concentration information is not available for this spectrum and, therefore, molar absorptivity values cannot be derived.

Data compiled by: NIST Mass Spec Data Center, S.E. Stein, director

Gas Phase Spectrum



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Additional Data

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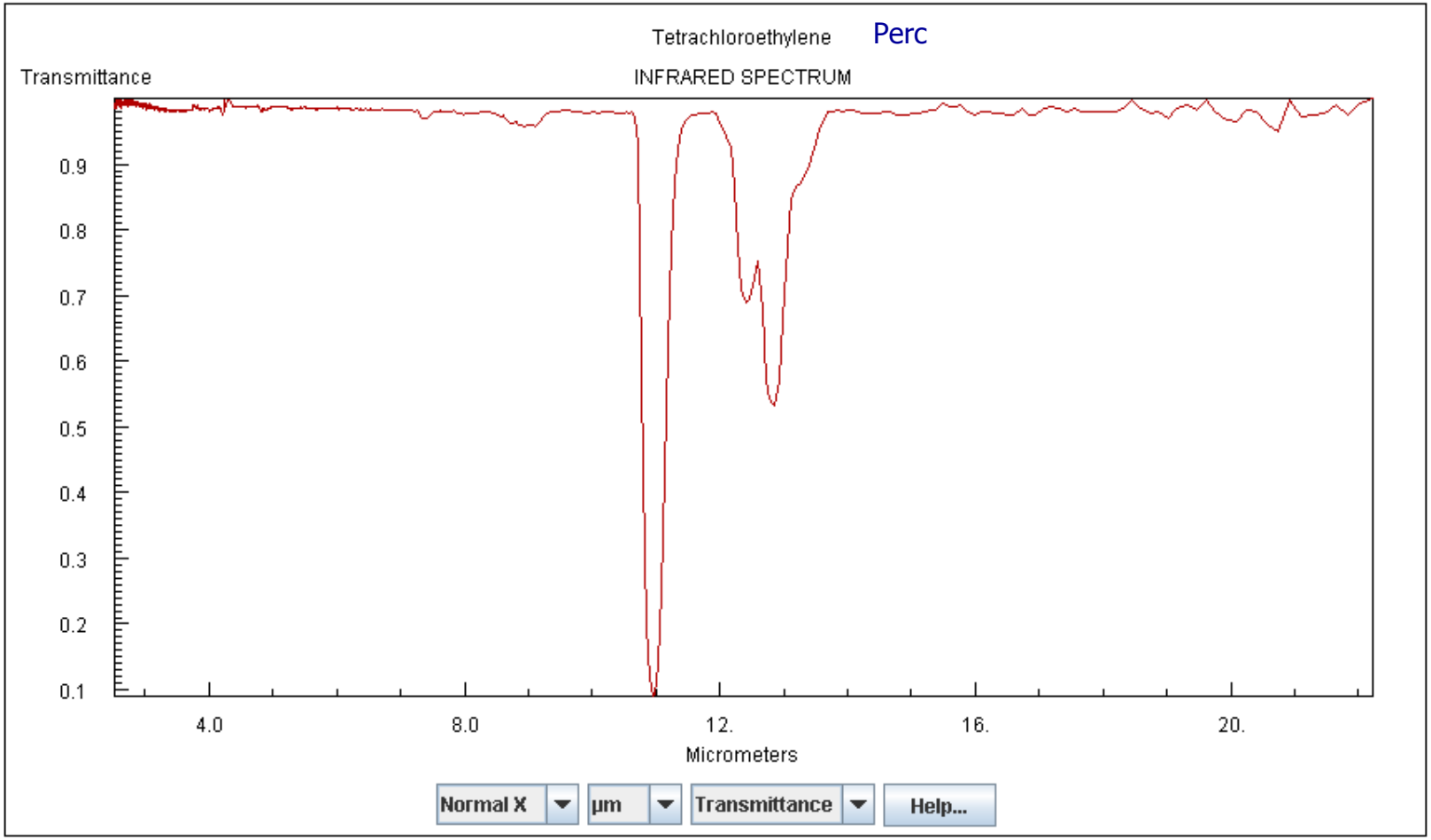
Gas Phase Spectrum



Notice: Concentration information is not available for this spectrum and, therefore, molar absorptivity values cannot be derived.

Additional Data

FLIR Overview

- The FLIR camera sees a gas cloud because:

1. The temperature of the gas cloud is different from the background temperature.

2. The gas cloud is moving relative to the background. (Freeze Frame)

3. The gas cloud absorbs IR energy in the wave band the camera is sensitive to.

FLIR Overview

- It is not recommended to operate the camera in the rain of fog. Do to background distortion from the weather.

- It is difficult to get good images on highly reflective material. (Stainless Steel).

Questions

- The Department has a video Thermographer in each of the field offices.
- Northern (973) 656-4080
- Central (609) 292-3187
- Southern (856) 614-3601

Questions

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